

What Is Claimed Is:

1. A device for regulating a polyphase machine in a field-oriented regulation in which a direct-axis voltage and a quadrature-axis voltage are determined as manipulated variables of a regulating system, the device comprising:

    a pulse-width-modulation inverter for generating phase voltages of individual phases, the inverter being triggered by one of (a) a PWM signal in PWM operation and (b) a block signal in block operation;

    a software device for generating a PWM control signal which determines switching points in time of the PWM signal;

    a software device for generating a block control signal which determines switching points in time of the block signal;

    a switch device which in a PWM mode selects the PWM control signal and in a block mode selects the block control signal; and

    a PWM/block signal device for receiving one of the PWM control signal and the block control signal relayed from the switch device, and for supplying one of the PWM signal and the block signal at an output.

2. The device according to claim 1, wherein the polyphase machine is a synchronous machine.

3. The device according to claim 1, wherein the PWM/block signal device includes a device for generating a periodic signal and a multiphase comparator.

4. The device according to claim 3, wherein the device for generating the periodic signal includes a sawtooth voltage generator.

5. The device according to claim 1, wherein the device for generating the PWM control signal, the device for generating the block control signal and the switch device are implemented as software.

6. The device according to claim 1, wherein the device for generating the block signal ascertains the block control signal by extrapolation of an electric phase angle,

taking into account a variable derived from a rotational speed, and determines if and where a change in state of the block signal will occur between an instantaneous variable and an extrapolated variable.

7. The device according to claim 6, wherein the variable derived from the rotational speed is an electric angular velocity of a phase.
8. A method for regulating a polyphase machine in which a direct-axis voltage and a quadrature-axis voltage are determined as manipulated variables of a regulating system and are converted into one of a PWM signal and a block signal as a function of an operating mode, the converted signal being used to trigger a pulse-width-modulation inverter which generates phase voltages of individual phases, the method comprising:
  - generating a PWM control signal which determines switching points in time of the PWM signal via a first software unit;
  - generating a block control signal which determines switching points in time of the block signal via a second software unit;
  - selecting one of the PWM control signal in a PWM mode and the block control signal in a block mode via a switch device; and
  - sending one of (a) the selected control signal and (b) a signal derived from the selected control signal to a PWM/block signal device capable of generating one of the PWM signal and the block signal as a function of the signal supplied.
9. The method according to claim 8, wherein the polyphase machine is a synchronous machine.
10. The method according to claim 8, wherein the PWM/block signal device includes a device for generating a periodic signal and a multiphase comparator, the signal supplied being compared with the periodic signal.
11. The method according to claim 8, wherein one of the PWM control signal and the block control signal is selected by the switch device and is relayed to a

conversion device which calculates from one of the PWM control signal and the block control signal a modified control signal tuned to the PWM/block signal device and relays the modified control signal to the PWM/block signal device.

12. The method according to claim 8, wherein one of the PWM control signal and the block control signal is selected by the switch device and is relayed directly to a pulse-width-modulation inverter.